

What is claimed is:

1. An apparatus for remotely operating a plurality of information devices connected to a network provided with a plug-and-play function, said apparatus comprising:
 - 5 a communication section that is configured to receive data from the network, while transmitting data to the information devices on the network;
 - 10 a connection detecting section that is configured to analyze the data received from the communication section to detect that a remote display device is connected to the network, said remote display device providing an operation environment concerning a device to be operated to a user;
 - 15 a display generating section that is configured to generate an input display for use in inputting data instructed by the user to an information device selected by the user as the device to be operated, and transmit a generated input display to a detected remote display device; and
 - 20 a control section that is configured to control the device to be operated according to the data instructed by the user that is received at the communication section when the data instructed by the user is input on the input display on the remote display device.
- 25 2. The apparatus according to claim 1, wherein the display generating section generates a selection display to determine the device to be operated when the remote

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display device is connected to the network, and transmits a generated selection display to the detected remote display device, and the control section determines the device to be operated based on selection data received 5 from the communication section when the selection data is input on the selection display on the remote display device.

3. The apparatus according to claim 2, wherein the display generating section generates the selection 10 display on which icons of information devices are showed that needs support of the remote display device to operate.

4. The apparatus according to claim 3, wherein the display generating section generates the selection 15 display including a character sequence for an operation guidance to the user.

5. The apparatus according to claim 3, wherein the control section determines contents of operations corresponding to a combination of the icons selected on 20 the selection display on the remote display device.

6. The apparatus according to claim 1, wherein when the apparatus receives from the remote display device a request for displaying a status of the device to be operated with the device designated, the apparatus 25 transmits a status display indicative of the status of the device to be operated to the remote display device to display.

7. The apparatus according to claim 1, further comprising:

a management table with which information on programs for converting format of data so that each of 5 the information devices connected to the network is capable of handling the data;

a first storing section that stores the programs; and

10 a second storing section that stores input data from an information device selected as the device to be operated,

15 wherein based on the information on programs registered with the management table, the control section starts up a program to convert the input data into data with format for an other device to be operated selected as another device to be operated.

8. The apparatus according to claim 7, wherein the network is an IEEE 1394 network operating in conformity to IEEE 1394, and the management table has unique ID 20 inherent to each information device including the remote display device, node ID assigned to the information device connected to the IEEE network and the information on programs in relation to each other.

9. The apparatus according claim 8, further 25 comprising:

an outside communication section that is configured to perform a communication over the internet;

an IP address identifying section that is configured to identify a destination IP address from internet data received via the internet;

an address relating table that relates an IP address 5 assigned or a virtual IP address virtually assigned to the information device to the unique IP address; and

a destination adapting section that is configured to add the unique ID corresponding to the virtual IP address to a destination portion at a header based on 10 the address relating table to transmit on the network when the destination IP address of the internet data is the virtual IP address.

10. A remote display device that is recognized by the apparatus according to claim 1 when said device is 15 connected to a network provided with a plug-and-play function, said device comprising:

a communication section that is configured to communicate according to a protocol of the network;

a display section that is configured to display the 20 input display received from the network through the communication section; and

an instruction recognizing section that is configured to recognize the input data input by the user on the input display to transmit to the apparatus 25 according to claim 1.

11. A method for remotely operating a plurality of information devices connected to a network provided with

a plug-and-play function, said method comprising:

analyzing data received from the network to detect that a remote display device is connected to the network, said remote display device providing an operation 5 environment concerning a device to be operated to a user;

generating an input display for use in inputting data instructed by the user to an information device selected by the user as the device to be operated, and transmitting a generated input display to a detected 10 remote display device; and

controlling the device to be operated according to the data instructed by the user that is received from the network when the data instructed by the user is input on the input display on the remote display device. 15

The present invention is not limited to the above described embodiments, and various variations and modifications may be possible without departing from the scope of the present invention.

This application is based on the Japanese Patent 20 Application No.2000-013706 filed on January 24, 2000, entire content of which is expressly incorporated by reference herein.